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Afghanistan Reconstruction

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Final Assessment: What We Have Learned From Our Inspections of Incinerators and Use of Burn Pits in Afghanistan



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for Afghanistan Reconstruction

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Commanding General and Chief of Engineers,
U.S. Army Corps of Engineers

This report presents SIGAR's final assessment of the Department of Defense's (DOD) use of incinerators and open-air burn pits to dispose of solid waste in Afghanistan. The facts and concluding observations contained in this report are based on inspections conducted by SIGAR between October 2012 and June 2014 at Camp Leatherneck, Forward Operating Base Salerno, Forward Operating Base Shahrana, and Shindand Airbase. By addressing at a systemic level the common problems identified in this report, DOD could improve management of solid waste disposal in future contingency operations.

This report highlights the ways in which incinerator operations in Afghanistan were not conducted in a manner that resulted in the most efficient use of U.S. taxpayer funds. Unfortunately, in many instances DOD officials did not take sufficient steps to ensure the proper management of contracts for the construction of the incinerators to address the problems identified during our inspections of particular incinerator facilities. Given the fact that DOD has been aware for many years of the significant health risks associated with open-air burn pits, it is indefensible that U.S. military personnel, who are already at risk of serious injury and death when fighting the enemy, were put at further risk from the potentially harmful emissions from the use of open-air burn pits.

Because SIGAR's prior inspection reports on incinerators contained numerous recommendations to improve the planning and management of incinerator facilities, this report contains no new recommendations. We provided a draft of this report to U.S. Central Command, the U.S. Army Corps of Engineers (USACE), and U.S. Forces–Afghanistan (USFOR-A) for review and comment. USACE and USFOR-A provided us with written comments, which are reproduced in appendices IV and V, respectively. Technical comments were incorporated into this report, as appropriate.

SIGAR conducted this work under the authority of Public Law No. 110-181, as amended; and the Inspector General Act of 1978, as amended.

John F. Sopko
Special Inspector General for Afghanistan Reconstruction



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Abbreviations

CENTCOM	U.S. Central Command
DOD	Department of Defense
DODI	Department of Defense Instruction
FOB	Forward Operating Base
GAO	U.S. Government Accountability Office
USACE	U.S. Army Corps of Engineers
USFOR-A	U.S. Forces-Afghanistan



Background

Since its arrival in Afghanistan in 2001, the U.S. military has needed to dispose of solid waste generated by personnel at installations throughout the country. The U.S. military presence in Afghanistan eventually reached a peak of about 110,000 personnel in 2011, which generated about 440 tons of solid waste each day, including plastics, dining facility food, aerosol cans, electronic equipment, furniture, metal containers, tires, and batteries. During most of the first four years of contingency operations in Afghanistan, the U.S. military used open-air burn pits exclusively to dispose of its solid waste.

In 2004, the Department of Defense (DOD) began introducing new solid waste disposal methods in Afghanistan, including landfills and incineration. Although DOD knew about the risks associated with open-air burn pits long before contingency operations began in Afghanistan,¹ it was not until 2009 that U.S. Central Command (CENTCOM) developed policies and procedures to guide solid waste management, including requirements for operating, monitoring, and minimizing the use of open-air burn pits.²

In April 2010, DOD reported to Congress that open-air burning is the safest, most effective, and most expedient manner of solid waste reduction during military operations until current research and development efforts could produce better alternatives.³ DOD officials added that burn pits are also the most cost-effective waste management practice, but that incinerators are the best alternative. However, the U.S. Government Accountability Office (GAO) also reported that DOD had not evaluated the costs and benefits of the waste management alternatives and compared them with the costs and benefits of open-air burning, or taken into account all the relevant cost variables, including the impact on the environment and long-term health of service members, civilians, and host country nationals.

U.S. military personnel returning from Afghanistan have reported health problems that they contend came from their exposure to emissions from open-air burn pits on their installations. Recent health studies have raised concerns that the particulate matter and toxic smoke contaminated with lead, mercury, dioxins, and irritant gases generated by open-air burn pits could negatively affect an individual's organs and body systems, such as the adrenal glands, lungs, liver, and stomach.⁴ In August 2010, CENTCOM reported that there were 251 active open-air burn pits in Afghanistan, representing a 36.4 percent increase from just four months earlier.

In addition, GAO reported DOD officials have stated that, during wartime, environmental planning, such as the management of solid waste, is not always a high-priority because of the operational and logistical pressures, safety and security risks, and the overall lack of resources available initially to manage waste. Furthermore, DOD officials have explained that bases are in constant flux during wartime operations and, as a result, the lack of predictability makes base planning and resource investment decisions difficult, including planning and implementing resources to manage waste.

CENTCOM Regulation 200-2 acknowledges that open-air burn pit operations are necessary during contingency operations, especially when bases are first established. However, CENTCOM's regulation provides a specific threshold—when an installation exceeds 100 U.S. personnel for 90 days—that determine when an installation must develop a plan for installing alternative waste disposal technologies, such as incinerators, so that open-air burn pit operations can cease. The regulation does not state that incinerators must be used, only that an alternative solid waste disposal method to open-air burn pits needs to be employed.

Since the CENTCOM regulation went into effect, incinerators became the widespread al-



Photo 1 - Two 8-Ton Capacity Incinerators at FOB Salerno



Source: SIGAR, December 11, 2012

ternative waste disposal method. In early 2010, U.S. Forces–Afghanistan (USFOR-A)—the command responsible for command and control of U.S. operations in Afghanistan—reported having 20 solid waste incinerator systems operational and 46 awaiting installation. (See photo 1 showing Forward Operating Base (FOB) Salerno’s incinerators.) In response to our request, CENTCOM provided information on incinerators constructed in Afghanistan using funds provided for military construction activities. CENTCOM identified nine installations, involving 23 incinerator systems paid for with

these funds. The combined cost to purchase and install these incinerators was approximately \$81.9 million.

From October 2012 through June 2014, we conducted inspections at four of the nine installations containing incinerators built with military construction funds—Camp Leatherneck in Helmand province, FOB Salerno in Khowst province, FOB Sharana in Paktika province, and Shindand Airbase in Herat province.⁵ For the inspections of incinerators at these installations, we assessed whether (1) construction was completed in accordance with contract requirements and technical specifications, and (2) the incinerators were being used as intended and maintained.

This report is based on our previous inspection reports dealing with solid waste disposal in Afghanistan.⁶ Our intention was to assess the planning, management, and oversight of the incinerator contracts and construction that led to the non-operation or limited operation of incinerators for solid waste disposal and the continued use of open-air burn pits.

We conducted our inspections in accordance with the *Quality Standards for Inspection and Evaluation* published by the Council of the Inspectors General on Integrity and Efficiency, and engineering assessments were conducted by our professional engineers in accordance with the National Society of Professional Engineers’ *Code of Ethics for Engineers*. Appendix I discusses our scope and methodology for this report.



Better Planning and Management for Solid Waste Disposal is Needed Before the Next Contingency Operation

DOD did not adequately plan for and manage disposal of solid waste at its installations in Afghanistan. Early in the war, the U.S. military relied on open-air burn pits to dispose of solid waste. Use of burn pits was considered quick and easy, and required minimum cost. Over time, the U.S. military began employing other methods such as off-base landfills and incineration. Nonetheless, the overall approach to its solid waste disposal in Afghanistan was haphazard and reactive.

DOD was slow to implement alternative waste management methods due to what it described as other operational priorities in Afghanistan. The fact that CENTCOM did not develop a regulation addressing the use of open-air burn pits until 2009—about eight years after U.S. contingency operations began in Afghanistan—despite the health risks associated with burn pits, suggests that finding a less hazardous alternative method of waste disposal was not a high priority. Consequently, many items that CENTCOM's regulation now prohibits from open-air burn pits—such as plastics, tires, and batteries—were routinely disposed of in burn pits in Afghanistan. Unfortunately, the lack of planning for disposing of solid waste resulted in limited options other than open-air burn pits.

Following the issuance of CENTCOM Regulation 200-2 in 2009, incinerators quickly became the solid waste disposal method of choice in Afghanistan. Yet, in many instances, these incinerators were installed without DOD first determining whether they could serve as practical alternatives to open-air burn pits and what it would cost to operate and maintain the incinerators.

Inadequate Planning of Design, Construction, and Operational Requirements Was a Factor in Some Installations Not Using Their Incinerators

We conducted on-site inspections at two of the four installations—FOB Salerno and FOB Sharana—that never used their incinerators. According to CENTCOM data, two other installations—FOB Ghazni and FOB Maywand—also never operated their incinerators. The cost to install incinerators at these four bases totaled approximately \$20.1 million—money which was wasted because the incinerators were never used.⁷ Inadequate planning directly contributed to these bases not using their incinerators. Specifically,

- In April 2013, we reported that FOB Salerno installed two 8-ton capacity incinerators that generally met technical specifications and were properly sized for the base's daily solid waste, assuming they could operate 24 hours per day.⁸ However, FOB Salerno was a “black-out” base because of the threat condition in the area in which it was located along the Pakistan border. Black-out conditions were necessary because light emitted from operating incinerators in darkness provided a target for insurgent rocket fire. U.S. Army officials told us that the decision to install the two incinerators took into consideration the black-out conditions, but our analysis showed the base's threat conditions would limit the incinerators' use to no more than 12 hours per day, thereby allowing it to process no more than 57 percent of the base's daily solid waste. Absent the full use of its incinerators, FOB Salerno continued its open-air burn pit operations in violation of the CENTCOM regulation. Further, given the estimated cost to operate and maintain the incinerators—\$1 million annually—the base commander decided to continue using the open-air burn pits to dispose of the base's solid waste.



- In December 2013, we reported that FOB Sharana installed two 40-ton capacity incinerators although the contract called for installing incinerators with the capacity to process 24 tons of solid waste per day.⁹ Due to inadequate design planning, the physical layout of the incinerators would allow base personnel to process only 20 tons of solid waste daily, or about 80 percent of the capacity called for under the contract. As constructed, the two incinerators shared a common loading area, which was too narrow to allow equipment, such as forklifts, to load the units with solid waste. As a result, solid waste would have to be manually loaded into the incinerators. Also, the ramps to access the ash ejected from the incinerators were inaccessible to the equipment needed to transport it to a nearby pit. Consequently, workers would have to load wheel barrels and manually transport the ash. This situation, combined with electrical deficiencies which posed safety hazards that were never corrected under the contract and were later estimated to cost about \$1 million to repair, led FOB Sharana officials to decide not to operate the incinerators. As a result, FOB Sharana continued using open-air burn pits to dispose of its solid waste.¹⁰
- Inadequate Planning for Operation and Maintenance Contracts Was a Factor in the Non-Use or Partial Use of Some Incinerators**
- Our inspections showed that lack of planning for operation and maintenance contracts resulted in incinerators not being used at all in some cases and at significantly reduced capacity in others. Better planning for these operation and maintenance contracts and their associated costs should result in more efficient and effective use of incinerators, if incinerators are chosen for solid waste disposal in future contingency operations. As experienced in Afghanistan, operation and maintenance costs associated with incinerators can be quite high, with estimates for some incinerators that we inspected reaching \$1 million annually. This resulted in some base commanders choosing to continue using less expensive open-air burn pits, rather than installed incinerators, which caused them to be in violation of CENTCOM Regulation 200-2 and to continue placing U.S. personnel at risk from the potentially hazardous emissions generated by the burn pits. For example,
- In April 2013, we reported that the Defense Contract Management Agency directed its operation and maintenance contractor to conduct a technical inspection of the two 8-ton capacity incinerators and supporting facilities at FOB Salerno in preparation for adding the facilities to its maintenance list. In response, the contractor submitted an estimate of \$235,000 for repairs and mobilization necessary before it would add the incinerators to the maintenance list.¹¹ In addition, the contractor estimated it would cost about \$1 million annually for it to provide operation and maintenance services for the incinerators and their supporting facilities. Based on these estimates, FOB Salerno's base commander decided not to include the incinerators in the operation and maintenance contract. As a result, despite spending \$5 million to construct the incinerators, they were never used for solid waste disposal, and the base continued using open-air burn pits until it closed in October 2013.
 - In July 2013, we reported that Camp Leatherneck was not using two of its four solid waste incinerators. DOD spent \$18 million to purchase and install two 12-ton capacity units and two 24-ton capacity units. During our three inspection visits in 2013, neither of the two 24-ton units was operational because, according to a camp engineer, the contract to operate and maintain them had not been awarded. As a result, Camp Leatherneck relied on open-air burn pits to dispose of its solid waste that was not incinerated in the two 12-ton units. At the time, the base was also in the process of awarding a \$1.1 million contract to have solid waste hauled to a local landfill—a solution that could have eliminat-



ed the need for continued use of the open-air burn pit. Our report pointed out, however, that Camp Leatherneck could terminate its use of the open-air burn pit through maximum use of the four incinerators. Although the camp's four incinerators were capable of processing all of the camp's daily solid waste, no action had been taken to award an operation and maintenance contract for the 24-ton units. The report also noted that by using the full capacity of the incinerators, the contract for hauling solid waste off-site would likely not be necessary.

Planning for Cost-Effective and Safe Solid Waste Disposal Should be Done Prior to the Next Contingency Operation

When incineration is the chosen method for solid waste disposal in future contingencies, pre-established guidelines for how many incinerators and the maximum capacity for each incinerator can be developed for any installation. The determining factor for how many incinerators are needed is the number of personnel planned for the installation and the number of hours per day the incinerators can operate. For example, during our Camp Leatherneck inspection, we reviewed the operation and maintenance manual for the installed incinerators, which noted that the maximum capacity for the camp's four incinerators—two 12-ton capacity and two 24-ton capacity incinerators—was 72 tons of solid waste per day.

Based on U.S. Army Central information that we used to determine the capacity requirements for incinerators employed in a contingency environment, Camp Leatherneck's 13,500 personnel would produce about 54 tons of solid waste each day.¹² Table 1 shows our calculations of how much the four incinerators combined could process at the 13,500 personnel level. The calculations evaluate the incinerators' processing capacity using three scenarios—24 hours, 20 hours, and 18 hours of operation per day.

Table 1 shows that the incinerators would be capable of processing the camp's solid waste if operated at least 18 hours per day. This operating duration also would allow time for repair, maintenance, and cleaning. Additional calculations showed that once the personnel level decreased to 12,000, the camp would be capable of processing all solid waste using only three incinerators—one 12-ton and two 24-ton—and operating them 20 hours each per day.

Table 1 - Incinerator Processing Capacity

Camp Leatherneck Population	Daily Waste Generated ^a	Hours of Operation per Day	Daily Waste Processed
13,500	54 tons	24	72 tons
13,500	54 tons	20	60 tons
13,500	54 tons	18	54 tons

Source: SIGAR analysis based on information obtained from U.S. Army Central, Camp Leatherneck, and the incinerators' operation and maintenance manual.

Note: ^a Based on an average of 8 pounds per person per day.



Holding Contractors and Government Contracting Officers Accountable for Completing Projects According to Contract Requirements Could Save U.S. Taxpayers Money in Future Contingency Operations

Action needs to be taken to increase accountability for the proper management and execution of solid waste disposal contracts, so that U.S. taxpayer funds are not wasted in future contingency operations. Agencies should be vigilant in making sure that contractors are not fully compensated for work that was not performed according to the contract or that was performed so poorly that a new contractor had to be hired to correct deficient workmanship at additional cost to U.S. taxpayers.

According to Section 1.602-2 of the Federal Acquisition Regulation, contracting officers are responsible “for ensuring performance of all necessary actions for effective contracting, ensuring compliance with the terms of the contract, and safeguarding the United States’ interests in its contractual relationships.” Despite this requirement, during our incinerator inspections in Afghanistan, we found occasions where contractors were paid the full contract amount, even though they failed to perform in accordance with the contract requirements.

Failure to hold contractors accountable for not adhering to contract requirements—yet paying them in full—is unfortunately not a problem isolated to incinerators and solid waste disposal in Afghanistan. From July 2009 through December 2014, we issued 30 inspection reports addressing the construction of schools, medical clinics, hospitals, prisons, and military facilities for the Afghans, and a common theme throughout many of those reports was that contractors did not deliver according to the contract requirements but were still paid the full contract amount and released without further obligation.¹³ For example, in July 2013, we reported that more than four years after construction began on the Sheberghan teacher training facility in Jawzjan province it had still not been completed.¹⁴ One contractor walked

away from the project after being paid \$3.1 million despite poor performance and unresolved issues involving, among other things, wiring that did not conform to electrical code. A second contractor was dismissed, but paid even though it did not complete the project, including correcting the issue involving the non-code compliant wiring. In both cases, the U.S. Army Corps of Engineers (USACE) closed the contracts and released the contractors from further liability. As of January 5, 2015, even though a third contract had been awarded to finish construction, the teacher training facility had still not been completed. We plan to report lessons learned from our inspections work associated with these other infrastructure reconstruction activities in the future.

FOB Salerno and FOB Sharana Incinerators Were Transferred to the Installations with Deficiencies

In two of our four incinerator inspections—FOB Salerno and FOB Sharana—we found that incinerator facilities were constructed and transferred to the bases while still having deficiencies. The combined cost to purchase and install the four incinerators at these two bases was approximately \$10.4 million. In both cases, USACE paid the contractors the full amount of the contract without the deficiencies being corrected. Further, neither base used the incinerators for solid waste disposal. Specifically:

- On November 27, 2011, USACE provided the contractor at FOB Salerno with a letter identifying deficiencies with construction of the two incinerators that needed to be corrected. Among the deficiencies were rusted parts on electrical motors, a leaking hydraulic line, and missing pipe insulation. In a November 28, 2011, letter, USACE notified the contractor that the agency’s quality assurance repre-



sentative had inspected the incinerators and accepted them as complete. However, also in November 2011, the base's maintenance contractor inspected the incinerators, found that deficiencies remained, and estimated that it would cost about \$235,000 to repair and mobilize them.

In April 2012, the base engineer signed the form accepting responsibility for the incinerators so that the contract could be closed out.¹⁵ According to the engineer, USACE had urged him to do so. The accompanying transmittal memorandum stated that USACE officials had verbally certified the project's completeness, that the contractor had met all requirements, and that the facilities had passed the operation and maintenance contractor's technical inspection. However, the base engineer noted that the incinerators and supporting facilities "punch list" items were still open, and, as a result, the engineer stated that he was conditionally accepting the facilities.¹⁶ In commenting on a draft of the report, USACE stated that, according to an internal engineering regulation, facilities can be transferred to the customer with minor deficiencies.¹⁷ However, in this case, the deficiencies were never corrected and the incinerators were never used, but the contractor was paid the full contract amount of \$5 million.

- At FOB Sharana, the operation and maintenance contractor who would have operated the base's incinerator system found deficiencies during its inspection, including wiring that did not comply with electrical code. The contractor determined that these deficiencies, which it estimated would cost about \$1 million to correct, would need to be addressed before operating the incinerators. Base officials told us they decided not to operate the incinerators because of the high cost to repair the electrical deficiencies. Further, we found that the incinerator system was completed nearly three years past the scheduled completion date. USACE officials noted that the following contractor performance issues

contributed to project delays: (1) the contract was suspended for 62 days for failure to have qualified site safety, health, and quality control personnel on site; (2) the contractor was slow in completing safety, quality control, and schedule recovery plans; (3) the project experienced high turnover rates of contractor personnel, including project managers; and (4) the contractor's management never became actively involved in, or visited, the project. Despite these apparent deficiencies, USACE gave the contractor a satisfactory performance rating and paid it the full contract amount of \$5.4 million.

In its comments on a draft of our inspection report, USACE noted that, according to its records, FOB Sharana's incinerators were constructed in accordance with the contract's technical specifications, proper testing occurred in or about September 2012, and the facility was turned over to the U.S. military in operable condition in December 2012. USACE also stated that it viewed the deficiencies identified by the base contractor as "minor deficiencies" or punch list items. It pointed to a USACE regulation stating that facilities with minor deficiencies that would not interfere with the designed use will be accepted, although the operation and maintenance contractor estimated it would cost \$1 million to repair the deficiencies.¹⁸ USACE in its comments to our report added that when the U.S. military accepted the incinerators, "USACE understood it did so with plans to deconstruct the incinerator facility upon closure...and therefore did not require USACE to pursue resolution of any of the deficiencies identified.... Subsequently, the contractor was paid for work completed under the contract."

Shindand Airbase Incinerators Developed Operational Problems after Installation that Were Corrected During the Warranty Period

When facilities are constructed and found to have deficiencies, those deficiencies should be corrected before the government accepts them



or it should make provisions to have the deficiencies corrected during the warranty period. This helps ensure that the U.S. government and the taxpayer receive what they paid for. Government contracting officers and their representatives are responsible for ensuring that contractors deliver facilities according to the terms and conditions of the contract. The fact that these officials cannot be on site throughout the entire construction period to oversee the contractor's work is one reason that warranties are written—normally for a one-year period—into construction contracts. These warranties help ensure that work performed is free from defects in materials and workmanship or that they are corrected—at no additional cost to the owner—under the warranty period. When properly followed, these warranties can be effective in delivering complete and usable facilities. Our inspection of incinerators at Shindand Airbase shows that resolving deficiencies prior to the project's completion or during the warranty period produces positive results.

At Shindand Airbase, USACE officials ensured that mechanical issues that developed after the incinerators were transferred to the base were repaired during the warranty period. During our inspection, we learned that six months after transfer, the base's incinerators began operating at a reduced rate due, in part, to structural failure of the refractory liner inside the incinerators and poorly functioning fuel injection systems.¹⁹ As a result, only about 35 percent of the base's solid waste was being disposed of in the incinerators, with the remainder burned in the Afghan-run open-air burn pit located on the base. The reduced operating rates were attributable to the incinerators running 24 hours a day, 7 days a week, which did not allow time for maintenance. Shortly after the problems were identified, the manufacturer corrected them under the warranty agreement. Further, due to recycling, the incinerators now operate at about 18 hours per day, which allows time for maintenance.



Greater Adherence to Laws, Regulations, and Other Guidance Governing the Use of Open-Air Burn Pits Would Improve Oversight and Help Reduce Health Risks for U.S. Personnel

Our inspection reports have shown that DOD needs to establish better controls and provide greater oversight during future contingency operations to ensure that existing laws, regulations, and other guidance addressing solid waste disposal and the use of open-air burn pits is properly followed. The Special Inspector General for Afghanistan Reconstruction—in remarks before the Middle East Institute in Washington, D.C. on May 14, 2014—noted that there are many excuses for inadequate oversight and for failing to mitigate the risks of working in a war zone, with security topping the list. The Inspector General went on to say that, “Ultimately though, the biggest cause of inadequate oversight in Afghanistan may well be a lack of commitment. Despite promises and statements to the media and Congress, oversight is still not viewed as mission critical by bureaucrats responsible for carrying out this important mission and protecting our tax dollars.”

Prior to 2009, DOD did not have comprehensive policies and procedures to guide solid waste management during contingency operations. Section 317 of the National Defense Authorization Act for Fiscal Year 2010 restricts the disposal of waste in open-air burn pits. Section 317 required the Secretary of Defense to “prescribe regulations prohibiting the disposal of covered waste in open-air burn pits except in circumstances in which the Secretary determines that no alternative disposal method is feasible.”²⁰ If the Secretary determines no alternative disposal method is feasible, the law requires the Secretary to notify the House and Senate Armed Services Committees of the determination within 30 days, and after this notice has been given, submit justifications to the committees every 180 days to continue to operate open-air burn pits.

In order to comply with the requirements of Section 317, DOD promulgated CENTCOM

Regulation 200-2 and DOD Instruction (DODI) 4715.19, both of which address the use of open-air burn pits—including the burning of “covered waste”—during contingency operations. However, we found that U.S. military installations in Afghanistan did not always adhere to the requirements of either the regulation or the instruction. Consequently, U.S. military and civilian personnel were continuously exposed to the potentially harmful effects associated with burning solid waste in open-air burn pits not only before, but also after Congress and DOD acted to restrict the use of open-air burn pits to dispose of hazardous substances.

U.S. Military Installations in Afghanistan Were Not in Compliance with CENTCOM Regulation Limiting Burn-Pit Use

CENTCOM officials told us that no U.S. installation in Afghanistan has ever been in compliance with Regulation 200-2.²¹ The regulation is clear: when an installation exceeds 100 personnel for 90 days, it must develop a plan for installing waste disposal technologies, such as incinerators, so that open-air burn pit operations can cease. The regulation further states that if incinerators are chosen, they must be on-site within 180 days of the decision to use them and be operational 180 days after arrival. Lastly, the regulation states that open-air burn pit operations must cease 360 days after the U.S. personnel threshold has been met.²²

Following issuance of the CENTCOM regulation, DOD began procuring and installing more incinerators as an alternative to open-air burn pits for solid waste disposal in Afghanistan. However, during our inspections at FOB Salerno and FOB Sharana, we found that neither base ever used its solid waste incinerators.²³

As a result, both bases continued using open-air burn pits until they closed in the fall of 2013 (see photo 2 showing FOB Salerno’s open-air



Photo 2 - FOB Salerno Open-Air Burn Pit Operations



Source: SIGAR, September 30, 2012

burn pit). We also found that although incinerators were installed at Camp Leatherneck in March 2011, open-air burn pit operations continued on the installation through July 2013, an additional 27 months.²⁴ Similarly, although USACE transferred incinerators to Shindand Airbase in June 2012, open-air burn pit operations continued on the base until October 2013, an additional 16 months.

Prohibited Waste Was Disposed of in Burn Pits by the U.S. Military in Afghanistan

Early in the conflict in Afghanistan, open-air burn pits were routinely used to dispose of hazardous items—such as tires and batteries—that are now prohibited from burn pits. Such items, known as “covered waste,” were still being burned in open-air burn pits at FOB Sharana and Shindand Airbase despite the prohibitions in law and regulation.

As previously noted, in February 2011—in response to Section 317 of the National Defense Authorization Act for Fiscal Year 2010—DOD issued DODI 4715.19, requiring each operational commander in a contingency operation to develop and approve a solid waste manage-

ment plan. DODI 4715.19 notes that open-air burn pits are prohibited unless included within such a plan, and that:

“[O]pen-air burn pits should be a short-term solution during contingency operations where no other alternative is feasible. For the longer term, incinerators, engineered landfills, or other accepted solid waste management practices are to be used whenever feasible. When used, open-air burn pits should be operated in a manner that prevents or minimizes risk to human health and safety of DOD personnel and, where possible, harm to the environment.”

DODI 4715.19 also delegates the authority and responsibility to determine circumstances in which no alternative method for disposing of “covered waste” is feasible from the Secretary of Defense to the commanders of combatant commands. In the case of Afghanistan, the commander of CENTCOM is responsible for making this determination. To support the determination, the commander must develop a “determination package,” to include the “circumstances, reasoning, and methodology for the determination” that there are no alternative methods for disposing of “covered waste.” In accordance with Section 317, as amended by Section 316 of the National Defense Authorization Act for Fiscal Year 2012,²⁵ DOD also requires commanders to complete a health assessment report for each burn pit for which a determination package is developed. DOD then submits the determination package to the House and Senate Armed Services Committees. DODI 4715.19 also requires the commander to provide justification for continued burn pit operations every 180 days thereafter, for as long as prohibited “covered waste” is disposed of in this manner.

Two of the four installations we inspected—FOB Sharana in May 2013 and Shindand Airbase in February 2014—were not only actively using open-air burn pits, but they were also burning prohibited items such as plastics, aerosol cans, tires, and batteries, even though neither a determination package nor any of the



required justifications were provided to congressional stakeholders.²⁶ Specifically,

- At FOB Sharana, during our May 2013 site visit, we found that the base's incinerators were not operational due to, among other things, numerous electrical deficiencies that could pose safety hazards. Base officials told us that due to these deficiencies, they had no other means of disposing of solid waste other than the open-air burn pit. We also observed that the burn pit area contained plastic bottles and aerosol cans. Similarly, a June 2013 Occupational and Environmental Health Assessment survey found that "covered waste"—such as metals and plastics—was being burned in the base's open-air burn pit and that personnel living on or nearby the base could be affected by these operations.²⁷ Base officials stated that local nationals operating the burn pit were responsible for ensuring that prohibited items were removed from the burn pit prior to its use. However, according to the survey report, local nationals only removed items that they could sell and did not segregate the remaining solid waste and remove prohibited items.
- At Shindand Airbase, three separate health assessments indicated that the Afghan-run burn pits on the base included solid waste from U.S. forces, such as plastics and other prohibited "covered waste."²⁸ For example, a January 2011 Occupational Environmental Health Site Assessment survey found that solid waste was not being segregated at the burn pit and that prohibited waste—aerosol cans and batteries—were mixed in with other solid waste and

burned daily.²⁹ Two additional Occupational Environmental Health Site Assessment surveys found similar results with prohibited items—plastics, metals, and tires—being burned in open-air burn pits.³⁰ Further, a January 2013 USFOR-A Environmental Conditions Report found that U.S. operations generated most of the waste burned in the Afghan-operated burn pit on Shindand Airbase.³¹ The report added that the smoke from burned plastics, prohibited "covered waste," and other miscellaneous waste affected the air quality and health of residents, including U.S. personnel, at Shindand Airbase. The report recommended that all solid waste be sent to the incinerators so that the contractor operating them could sort through the waste and remove recyclables, including plastics.

In response to our December 2013 request for determination packages for bases burning "covered waste" in Afghanistan, CENTCOM replied that, "Determination packages are not required since the bases in question are not burning covered waste." The response further stated that, "Covered waste is not authorized to be burned in open-air burn pits in accordance with [CENTCOM Regulation 200-2] and therefore these bases are not burning covered waste [and] they are not required to develop and submit determination packages."³² However, as noted earlier, FOB Sharana and Shindand Airbase as well as other installations in Afghanistan were burning "covered waste" in open-air burn pits.



Concluding Assessment

DOD has the opportunity to better plan for and manage solid waste disposal on its installations in future contingency operations. We understand DOD's position that, at the beginning of a contingency, it has more important matters to focus on than solid waste disposal. However, DOD, U.S. military and civilian personnel, and U.S. taxpayers would all benefit from better pre-planning for solid waste disposal in contingency operations. For DOD, advance planning would lessen the burden of issues that need to be addressed when the contingency begins. For U.S. military and civilian personnel, planning would limit the time needed to rely on open-air burn pits and, therefore, the amount of time they would be exposed to the potentially harmful effects associated with burn pit emissions. For U.S. taxpayers, better planning would reduce the risk of funds being wasted on facilities that are built and never used.

In addition to better advance planning, DOD must do a better job of holding contractors accountable for delivering systems according to contract requirements and technical specifications. It is reasonable to expect that before paying a contractor the full contract amount, the facility being constructed or the system being provided has been inspected and all deficiencies have been corrected, or that clear arrangements have been made for correcting deficiencies during the warranty period. U.S. taxpayers deserve better than what they received for the money spent on incinerators in Afghanistan. DOD officials did not take sufficient steps to ensure that they were getting the incinerator facilities and services they were paying for, even after our inspection reports pointed out numerous problems. In fact, DOD considered deficiencies "minor," even though, as in one instance, those deficiencies were estimated to cost \$1 million to correct and resulted in the incinerators never being used. Accountability can only be enforced when not

only contractors but also government contracting officers and their representatives with the duty to monitor construction activities are held responsible for their actions.

Even more importantly, the potentially harmful effects from the emissions associated with open-air burn pits were known long before contingency operations began in Afghanistan. Congress took an important step in 2009 to define circumstances when burn pits could be used and what materials could be disposed in them. DOD acted on Congress' initiative by promulgating regulations detailing rules and responsibilities for the disposal of solid waste. However, DOD's failure to follow its own regulations have, in our view, potentially placed U.S. and coalition forces, Afghan National Security Forces, and Afghan and other countries' civilians at unnecessary risk. Because DOD was not prepared for effective solid waste management when contingency operations in Afghanistan began, burn pits provided an easy answer to its solid waste disposal needs. Nevertheless, this does not excuse DOD of its continued use of open-air burn pits after the construction of incinerators.

Lastly, it is disturbing that our inspections of DOD incinerator facilities showed that (1) prohibited items continued to be disposed of in open-air burn pits even after Congress passed legislation to restrict that practice; (2) DOD paid the full contract amount for incinerators that were never used because they contained deficiencies that were not corrected, and the added cost to correct them was too high to be cost-effective; and (3) U.S. military personnel and others were exposed to the emissions from open-air burn pits that could have lasting negative health consequences. All of these situations point to the need for DOD to pay far greater attention to its solid waste management needs before the next contingency.



Agency Comments And Our Responses

Although this report is a final assessment of SIGAR's prior inspection work on large military incinerators and contains no new recommendations, we provided a draft of this report to CENTCOM, USACE, and USFOR-A for review and comment. USACE and USFOR-A provided written comments, which are reproduced in appendices IV and V, respectively. CENTCOM and USFOR-A provided technical comments, which we incorporated into this report, as appropriate.

In its comments, USACE reiterated its previous comments to our individual inspection reports and stated that (1) the three incinerators in this report built by USACE were, in fact, operational on delivery; (2) although open punch-list items—deficiencies needing correction—existed at time of delivery, they were minor and would not interfere with startup and use; and (3) extensive and costly repairs necessary to make two of the three incinerators fully operational were not pursued because they were cost prohibitive and the bases were slated for closure. We addressed these comments in the individual inspection reports. Specifically, we stated that the contractors tasked with operating the incinerators estimated it would cost \$235,000 to add the incinerators at FOB Salerno to the maintenance list, while repairs to the incinerators at FOB Sharana were estimated to cost \$1 million. We concluded that the significant amount to be spent for repairs—before the incinerators could be used for the first time—clearly showed that the deficiencies were not minor. Nevertheless, USACE paid the contractors who built the incinerators in full, \$5 million for FOB Salerno and \$5.4 million for FOB Sharana. Most importantly, because the

incinerators were never made operational, U.S. personnel at these bases were continually exposed to the toxic smoke of open-air burn pits that continued to operate.

In its comments, USFOR-A stated that this report identified valuable areas for improvement for planners and commanders to consider at the beginning of future contingency operations. Specifically, USFOR-A agreed that DOD should provide further advanced planning on the associated costs, such as the costs required for operation and maintenance, and required labor and operational restrictions for solid waste disposal in future contingency operations. In addition, USFOR-A concurred that responsible oversight of construction is a necessary and critical step in providing adequate and functioning infrastructure. However, the command disagreed that the report fully accounted for the difficult and complex operational environment that led to commanders making very difficult decisions about solid waste disposal. In addition, the command stated that the report did not acknowledge many of the considerations a base commander considers when determining the most appropriate solid waste disposal actions or that operational conditions and disposal options may change over time. We believe that our incinerator reports acknowledge the difficult war zone environment. In fact, the concluding observations of this final assessment report state that we understand and agree with DOD's position that at the beginning of a contingency, it has more important matters to focus on than solid waste disposal. However, our incinerator reports also demonstrate the need for improved planning and oversight of solid waste disposal in contingency operations.



Appendix I - Scope and Methodology

SIGAR began its inspection work on the construction and use of incinerators on U.S. military installations in Afghanistan in October 2012. From October 2012 through June 2014, we performed a series of inspections which covered four U.S. military installations—Camp Leatherneck in Helmand province, Forward Operating Base (FOB) Salerno in Khowst province, FOB Sharana in Paktika province, and Shindand Airbase in Herat province. This report is based primarily on our findings stemming from the on-site inspections that we conducted at these four installations.

We began our work on this overall observations report in May 2014. Our approach was to identify and present common themes that ran throughout our inspections work on the construction and use of solid waste incinerators in Afghanistan. We used information from our previously issued inspection reports to highlight shortfalls with the planning, management, and oversight of the contracts and construction that led to the non-operation or limited operation of incinerators for solid waste disposal and the continued use of open-air burn pits. Observations that we made from our overall

work on incinerators fell into three broad areas, as discussed in the report. It was not our objective to reevaluate the information in the original inspection reports, but rather to rely on the information contained in them in order to identify common issues and problems which, when avoided, can form the basis for improving management of solid waste disposal and prove beneficial in future contingency operations.

We conducted our work on this effort from May 2014 through February 2015 in Arlington, Virginia. Our inspections at FOB Salerno and FOB Sharana, Camp Leatherneck, and Shindand Airbase were completed in accordance with the *Quality Standards for Inspection and Evaluation*, published by the Council of the Inspectors General on Integrity and Efficiency. The engineering assessments were conducted by our professional engineers in accordance with the National Society of Professional Engineers' *Code of Ethics for Engineers*. SIGAR performed this work under the authority of Public Law No. 110-181, as amended; and the Inspector General Act of 1978, amended. Appendix II contains a listing of our incinerator inspection reports.



Appendix II - SIGAR Incinerator Inspection Reports

SIGAR has issued four inspection reports addressing the construction and use of solid waste incinerators in Afghanistan—three in 2013 and one in 2014. Following is a listing of the four inspection reports and a summation of the findings.

- **SIGAR Inspection 13-8, *Forward Operating Base Salerno: Inadequate Planning Resulted in \$5 Million Spent for Unused Incinerators and the Continued Use of Potentially Hazardous Open-Air Burn Pit Operations*, April 25, 2013.** USACE spent \$5.4 million to construct two 8-ton capacity incinerators at FOB Salerno in Khowst province near the Afghanistan border with Pakistan. The incinerators and supporting facilities were never used.
- **SIGAR Alert 13-4, *Camp Leatherneck Incinerators, Burn Pit Being Used*, July 11, 2013.** The Air Force Civil Engineer Center spent \$11.5 million to build two 12-ton and two 24-ton capacity incinerators at Camp Leatherneck in Helmand province. Our inspection found the 12-ton incinerators were not being used to full capacity and the 24-ton incinerators were not being used at all, resulting in continued heavy use of the camp's open-air burn pit.
- **SIGAR 14-13-IP, *Forward Operating Base Sharana: Poor Planning and Construction Resulted in \$5.4 Million Spent for Inoperable Incinerators and Continued Use of Open-Air Burn Pits*, December 16, 2013.** USACE awarded a \$5.6 million contract to construct two incinerators at FOB Sharana in Paktika province on the border with Pakistan. The incinerators were installed on the base, but our inspection found that they were never made operational.
- **SIGAR 14-81-IP, *Shindand Airbase: Use of Open-Air Burn Pit Violated Department of Defense Requirements*, July 14, 2014.** USACE awarded a \$4.4 million contract for two 8-ton capacity incinerators for use at Shindand Airbase in Herat province. Another \$755,000 was spent on two smaller incinerators for use on the Afghan section of the base. Our inspection found that (1) the two 8-ton incinerators were in use at the time of our inspection after a delay in operation, (2) the Afghan-run incinerators were not used, and (3) open-air burn pits continued to be used for 16 months after the two 8-ton capacity incinerators were installed.



Appendix III - Installations Containing Incinerators Paid for with Military Construction Funds

U.S. Central Command provided us with information on nine installations in Afghanistan, involving 23 incinerators paid for using military construction funding. Table 2 shows the

combined cost to purchase and install these incinerators as well as the number and cost of unused incinerators.

Table 2 - Incinerators Paid for with Military Construction Funding in Afghanistan

Installation	Province	Incinerators Built	Cost of Incinerators Built (\$ MILLIONS)	Unused Incinerators	Cost of Unused Incinerators (\$ MILLIONS)
Bagram Airbase	Parwan	4	\$29.5	0	-
FOB Fenty	Nangarhar	2	\$4.4	0	-
FOB Ghazni	Ghazni	2	\$5.5	2	\$5.5
Camp Leatherneck	Helmand	4	\$18.0	0	-
FOB Maywand	Logar	2	\$4.2	2	\$4.2
FOB Salerno	Khowst	2	\$5.0	2	\$5.0
FOB Shank	Logar	3	\$5.4	0	-
FOB Sharana	Paktika	2	\$5.4	2	\$5.4
Shindand Airbase	Herat	2	\$4.5	0	-
Totals		23	\$81.9	8	\$20.1



Appendix IV - Comments from U.S. Army Corps of Engineers



DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS
TRANSATLANTIC DIVISION
201 PRINCE FREDERICK DRIVE
WINCHESTER, VIRGINIA 22602-4373

January 14, 2015

Ms. Gabriele A. Tonsil
Deputy Assistant Inspector General for Audits and Inspections
1550 Crystal Drive, Suite 900
Arlington, VA 22202

Dear Ms. Tonsil:

This letter provides the U.S. Army Corps of Engineers (USACE) Transatlantic Division's (TAD) response to the Special Inspector General for Afghanistan Reconstruction's (SIGAR) draft audit report, "Final Assessment: What We Have Learned From Our Inspections of Incinerators and Use of Burn Pits in Afghanistan" (SIGAR Inspection Code 007-G).

USACE acknowledges there are no recommendations contained in the report; however, the following comments are provided:

USACE TAD and our Districts fully support SIGAR's mission of ensuring that public funds are properly utilized and that projects are constructed to appropriate standards to achieve the maximum benefit to customers and ultimately the Afghan people. We continue to work in partnership with SIGAR by actively assisting in SIGAR audits and investigations, providing recommended solutions, and implementing appropriate changes to policies or procedures. Our Districts, Transatlantic Afghanistan District (TAA) and Transatlantic Middle East District (TAM), execute quality and timely construction and engineering operations throughout Afghanistan in support of Resolute Support (RS), provide sustainable development projects for the Afghan people that employ the populace, and build skilled human capital, which all promote the future stability of Afghanistan.

USACE takes seriously our overall responsibilities and commitments to providing the customer with quality and timely construction projects. We make every effort to be good stewards of the resources and assets allocated to provide various facilities to the Afghan people, and to ensure that our customers receive full value for what they paid.

This SIGAR report summarizes the results of four previously-issued reports on reviews of incinerator construction. Three of these reports involved incinerators constructed by USACE TAA. In USACE responses to the individual reports, TAD indicated, contrary to SIGAR's contention, that all of the incinerators turned over to customers were operational. The incinerators were constructed in accordance with contract technical specifications with the exception of some open punch list items. The open punch list items cited were minor deficiencies that should not have delayed transfer



-2-

of the incinerators. According to Engineer Regulation (ER 415-345-38) entitled "Construction Transfer & Warranties, dtd 30 June 2000, facilities "...completed with minor deficiencies which will not interfere with the designed use of the facilities, will be accepted from the contractor and transferred to the customer." The regulation further states that "any further minor deficiencies disclosed during the inspection will normally not be justification to delay transfer." Under some circumstances, minor deficiencies such as those in the report may also be addressed as warranty items requiring coordination between the customer and construction contractor. USACE coordinates with the contractor and customer to ensure that all punch list items have been completed in accordance with the contract terms.

Two of the incinerator sites were not placed into service because of extenuating circumstances beyond USACE's control or responsibility. These two incinerator sites were technically inspected by the LOGCAP contractor, who claimed extensive repairs were necessary to make the incinerators fully operational in order for them to operate and be placed on their operation and maintenance schedules. The cost estimates given to our military customer and users were cost prohibitive, especially for those bases that were closing soon. When it was announced that the bases for the incinerators would be closed as part of the drawdown of forces, all work efforts stopped on the incinerators. As a result, a decision was made by our customer and the user not to place the incinerators into operation. A third incinerator had minor deficiencies that were corrected, and was placed into service satisfactorily.

Although decisions regarding burn pit operation are not the responsibility of USACE, we fully understand the importance of both NATO and Afghan troops maximizing the use of incinerators over burn pits wherever possible. We are committed to the lives, health, and safety of our troops and civilians.

My point of contact for this response is Mr. Mike Hatchett, TAD Internal Review Auditor. He may be reached by e-mail at [REDACTED], or by telephone at [REDACTED].

RICHARD J.E. HEITKAMP
Colonel, USA
Deputy Commander



Appendix V - Comments from U.S. Forces–Afghanistan



HEADQUARTERS
UNITED STATES FORCES-AFGHANISTAN
BAGRAM, AFGHANISTAN
APO AE 09354

USFOR-A DCDR-S

23 January 2015

MEMORANDUM FOR United States Central Command Inspector General (CCIG), MacDill Air Force Base, FL 33621

SUBJECT: Response to SIGAR's Draft Report I-007G, "Final Assessment: What We Have Learned From Our Inspections of Incinerators and Use of Burn Pits in Afghanistan"

1. USFOR-A appreciates the candid historical review of our waste disposal operations, dating back to 2001. This report identifies valuable areas for improvement and it will be exceptionally valuable for planners and commanders at the beginning of future contingency operations.
2. The safety of our Soldiers, Sailors, Airmen, Marines and Civilians is always our top priority. Although this report clearly identifies areas for improvement, it does not fully account for the difficult and complex operational environment that led commanders to make some very difficult decisions. We believe that in order for the lessons to be appropriately applied in a future contingency, the reader must have a full understanding and appreciation of the difficult conditions that heavily influenced the commanders on the ground that were making those decisions.
3. We take this report and recommendations with the upmost seriousness as we move forward with the new Resolute Support Mission here in Afghanistan.
4. The point of contact is Col Patrick D. McEvoy, [REDACTED], DSN [REDACTED].

Encl
USFOR-A JENG's Comments, 19 Jan 15

JOHN M. MURRAY
Major General, U.S. Army
Deputy Commander, Support
United States Forces-Afghanistan



HEADQUARTERS
UNITED STATES FORCES-AFGHANISTAN
BAGRAM AIR FIELD, AFGHANISTAN
APO AE 09354

USFOR-A JENG

19 January 2015

MEMORANDUM FOR Inspector General, US Forces – Afghanistan

SUBJECT: Special Inspector General for Afghanistan Reconstruction Report – Final Assessment: What We Have Learned From Our Inspections of Incinerators and Use of Burn Pits in Afghanistan

1. USFOR-A JENG has reviewed the subject draft report and submits the enclosed comments for consideration.
2. The point of contact for this action is the undersigned at DSN [REDACTED].

Encl
USFOR-A JENG Comments

ALLAN L. WEBSTER
Colonel (OF-5) U.S. Army
Director, Joint Engineers
JTF-3/United States Forces-Afghanistan



USFOR-A JENG

SUBJECT: Special Inspector General for Afghanistan Reconstruction Report – Final Assessment: What We Have Learned From Our Inspections of Incinerators and Use of Burn Pits in Afghanistan

USFOR-A JENG has reviewed the January 2015 Draft SIGAR document *"Final Assessment: What We Have Learned From Our Inspections of Incinerators and Use of Burn Pits in Afghanistan"*, and offers the following observations:

Overall, USFOR-A JENG concurs with the concluding observations and agrees DOD should provide further advanced planning for solid waste disposal operations in future contingency operations. Specifically, costs such as operations and maintenance, as well as required labor and the operational restrictions, must be taken into account when planning and scoping solid waste disposal infrastructure. Additionally, USFOR-A JENG concurs that responsible oversight of construction is a necessary and critical step in providing adequate and functioning infrastructure.

However, USFOR-A JENG considers some of the language used in the draft report to be an over-simplification of the issues involved with the use of incinerators in a contingency environment. Specifically, the language which states "If selected, incineration should be straightforward and lends itself to having off-the-shelf packages that can be quickly executed." This inference and viewpoint is a root cause of the problems and deficiencies that the draft report itself details, i.e. that the "one size fits all" model is efficient or executable in a contingency environment, or that incinerators are scalable and interchangeable pieces that can be arranged according to necessity with minimal foresight or effort.

The draft report does not acknowledge many of the considerations for a Base Command to consider IOT determine the most appropriate solid waste disposal actions or that operational conditions and disposal options may change over time. For instance, the report succinctly details an optimal working schedule for the incinerator usage at Leatherneck, but does not mention Local National (LN) contractors' daily access to the base may be restricted due to operational, contractual, and/or force protection requirements. Current US regulations necessitate the requirement of sorting, by hand, the tons of trash generated at each base. Hand sorting is required so that covered wastes are segregate prior to disposal either by burn pit or incinerator. If not contracted then troop labor would have to be utilized for these tasks.

A waste management complex with incinerators requires both skilled/unskilled labor, large quantities of fuel, and maintenance to operate. Local solid waste disposal, operational conditions permitting, requires a LN contractor able to reliably accommodate the quantities of waste generated by a base on a daily basis. LN trash disposal also requires additional FP considerations particularly if LN haul vehicles are to enter/exit the base each day.



Appendix VI - Acknowledgments

Scott Harmon, Senior Inspections Manager

Brian Flynn, Senior Audit Manager

John Dettinger, Inspector-in-Charge

Robert Rivas, Senior Auditor

Ronald Riach, P.E., Engineer

Ronald Snyder, P.E., Engineer

**This assessment was conducted
under project code SIGAR-007G.**



SIGAR's Mission

The mission of the Special Inspector General for Afghanistan Reconstruction (SIGAR) is to enhance oversight of programs for the reconstruction of Afghanistan by conducting independent and objective audits, inspections, and investigations on the use of taxpayer dollars and related funds. SIGAR works to provide accurate and balanced information, evaluations, analysis, and recommendations to help the U.S. Congress, U.S. agencies, and other decision-makers to make informed oversight, policy, and funding decisions to:

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Endnotes

- 1 In 1978, DOD issued general guidance stating that U.S. personnel should not burn solid waste unless there was no other alternative, in part because of the environmental dangers associated with it.
- 2 CENTCOM Regulation 200-2, *CENTCOM Contingency Environmental Guidance*, September 3, 2009 (superseded by CENTCOM Regulation 200-2, *CENTCOM Contingency Environmental Standards*, March 26, 2012).
- 3 U.S. Government Accountability Office, *Afghanistan and Iraq: DOD Should Improve Adherence to its Guidance on Open Pit Burning and Solid Waste Management*, GAO-11-63, October 15, 2010.
- 4 The Armed Forces Health Surveillance Center, The Naval Health Research Center, and The U.S. Army Public Health Command (Provisional), *Epidemiological Studies of Health Outcomes among Troops Deployed to Burn Pit Sites*, May 2010; U.S. Government Accountability Office, *Afghanistan and Iraq: DOD Should Improve Adherence to Its Guidance on Open Pit Burning and Solid Waste Management*, GAO-11-63, October 2010; Institute of Medicine, Committee on the Long-Term Health Consequences of Exposure to Burn Pits in Iraq and Afghanistan, *Long-Term Health Consequences of Exposure to Burn Pits in Iraq and Afghanistan*, October 2011.
- 5 Camp Leatherneck, April (two visits) and May 2013; FOB Salerno, September and December 2012; FOB Sharana, May 2013; and Shindand Airbase, February 2014.
- 6 Appendix II contains a listing of our four incinerator inspection reports.
- 7 Appendix III contains additional information on the number, cost, and use of incinerators—paid for with military construction funding—at installations across Afghanistan.
- 8 SIGAR Inspection 13-8, *Forward Operating Base Salerno: Inadequate Planning Resulted in \$5 Million Spent for Unused Incinerators and the Continued Use of Potentially Hazardous Open-Air Burn Pit Operations*, April 25, 2013.
- 9 We requested project documentation that would explain why two 40-ton capacity incinerators were installed instead of one 24-ton capacity system. U.S. Army Corps of Engineers officials in Afghanistan told us that the project had been closed and documentation had been transferred back to the United States.
- 10 SIGAR 14-13-IP, *Forward Operating Base Sharana: Poor Planning and Construction Resulted in \$5.4 Million Spent for Inoperable Incinerators and Continued Use of Open-Air Burn Pits*, December 16, 2013.
- 11 SIGAR Inspection 13-8, *Forward Operating Base Salerno: Inadequate Planning Resulted in \$5 Million Spent for Unused incinerators and the Continued Use of Potentially Hazardous Open-Air Burn Pit Operations*, April 25, 2013.
- 12 U.S. Army Central—a subordinate element of CENTCOM—provided data showing that one person generates an average of 8 pounds of solid waste per day in a contingency environment.
- 13 SIGAR's 30 inspection reports are available on our website at www.sigar.mil/audits/inspectionreports/index.
- 14 SIGAR Inspection 13-9, *Sheberghan Teacher Training Facility: U.S. Army Corps of Engineers Paid Contractors and Released Them from Contractual Obligations before Construction Was Completed and without Resolving Serious Health and Safety Hazards*, July 17, 2013.
- 15 DD Form 1354, *Transfer and Acceptance of DOD Real Property*.
- 16 Punch list items are a list of unfinished items that the contractor is required to complete before receiving final payment under the contract.
- 17 USACE, *Engineer Regulation 415-345-38, Construction Transfer and Warranties*, June 30, 2000.
- 18 USACE, *Engineer Regulation 415-345-38*.
- 19 A refractory liner is made from a cement-like material that can either be cut into bricks which are then stacked into place or cast into its final shape.
- 20 National Defense Authorization Act for Fiscal Year 2010, Pub. L. No. 111-84, § 317, 123 Stat. 2190, 2249-50 (2009) (codified at 10 U.S.C. § 2701 note) defines "covered waste" as hazardous waste, medical waste, and other waste as designated by the Secretary. DOD Instruction 4715.19, which DOD issued in response to the requirements of Section 317, designated wastes including tires, treated wood, batteries, compressed gas cylinders unless empty with valves removed, fuel containers unless completely evacuated of contents, aerosol cans, polychlorinated biphenyls, petroleum, oils, and lubricant products (other than waste fuel for initial combustion), asbestos, mercury, foam tent material, or any item containing any of the above items.



- 21 We confirmed that no U.S. installation in Afghanistan has been in compliance of CENTCOM Regulation 200-2 during our inspections of FOB Sharana. See SIGAR Inspection SIGAR 14-13-IP, *Forward Operating Base Sharana: Poor Planning and Construction Resulted in \$5.4 Million Spent for Inoperable Incinerators and Continued Use of Open-Air Burn Pits*, December 16, 2013.
- 22 Department of Defense Directive Type Memorandum 09-032, *Use of Open-Air Burn Pits in Contingency Operations*, March 30, 2010 (DoDI 4715.19, superseded by *Use of Open-Air Burn Pits in Contingency Operations*, February 15, 2011); CENTCOM Regulation 200-2, September 3, 2009.
- 23 Two other bases that we did not inspect—FOB Ghazni and FOB Maywand—never used their incinerators.
- 24 In March 2011, USACE transferred two 12-ton capacity incinerators to the base. Two additional 24-ton capacity incinerators were installed in early 2013; however, at the time of our June 2013 site visit, the additional incinerators had not been made operational.
- 25 National Defense Authorization Act for Fiscal Year 2012, Pub. L. No. 112-81, § 316, 125 Stat. 1298, 1358-59 (2011).
- 26 We obtained additional documentation that notes the burning of “covered waste” at several of the remaining bases examined in this review.
- 27 USFOR-A, *Environmental Conditions Report for Forward Operating Base Sharana, Paktika province, Afghanistan*, June 2013.
- 28 We obtained additional documentation that further corroborates information in these assessments on the disposal of prohibited “covered waste” in open-air burn pits at Shindand Airbase.
- 29 USFOR-A, *Occupational and Environmental Health Site Assessment Survey Report, Shindand Airbase*, January 15, 2011.
- 30 USFOR-A, *Occupational and Environmental Health Site Assessment Survey Report, Shindand Airbase*, July 21, 2011; USFOR-A, *Occupational and Environmental Health Site Assessment Survey Report, Shindand Airbase*, December 2012.
- 31 USFOR-A, *Environmental Conditions Report for Shindand Airbase, Herat province, Afghanistan*, January 2013.
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